ABSTRACT OF THE DISCLOSURE

A mechanical tolerance method which links mechanical assembly tolerancing requirements to part variation controls. The method optimizes tolerance for a design. The method begins by a user defining an assembly requirement. Next, datum features are defined. The method then moves to the step of assigning component dimensions. A dimensional loop diagram is generated for each component. Next, an appropriate analysis/allocation method for determining tolerances of the components is determined. Upon selecting the appropriate process, variation controls are applied to the plurality of components. Next, tolerances are assigned to features of the components.